with sparse punctures; the abdomen is impunctate. The anal fimbria is greyish brown. The enclosure of the metathorax is granular and ill-defined. Tarsi dark in both sexes.

I had thought it possible that this might be *Andrena trizonata* (Ashmead, as *Cilissa*), so I sent a specimen to Mr. Ashmead, who kindly compared it with his type, and reported as follows:—"The *Andrena* sent is not my *trizonata*, although it superficially resembles it. Your specimen is slightly larger, differently sculptured, and has quite a different pygidial plate. The hind legs and tarsi are also differently coloured. It is quite a different insect."

These remarks relate to the female; the male of *trizonata* is said to have a banded abdomen; that of *sapellonis* ♂ is shining, without bands, though the first segment, lateral hind margins of the two following, and whole hind margins of the rest are clothed with rather pale brown hair, which is only conspicuous under a lens.

The female *sapellonis* must resemble Robertson's recently described *A. salicacea*, but it differs from the description of the latter as follows:—Pubescence of thorax above ochraceous; facial grooves white, their width about as great as length of first flagellar joint; enclosure and sides of metathorax rugose-reticulate, but sculptured alike; anal fimbria pale brown. *A. sapellonis* agrees with *salicacea* in the process of labrum, proportions of the first three flagellar joints, fuscous pubescence on tibiæ, and third submarginal cell at least twice as long as the second. The two doubtless are closely allied.

Hab. Beulah, 4 ♀, 1 ♂ at flowers of *Salix*, 2 ♀ at flowers of wild plum, May 20, 1899 (*W. Porter*).

Mesilla Park, New Mexico, U.S.A.,
March 28, 1900.

III.—*On the West-Indian Species of* Madrepora *. By J. W. Gregory, D.Sc., F.G.S., Professor of Geology in the University of Melbourne.

The term *muricatum* was first applied to West-Indian corals

* [This paper was read before one of the London Societies in June last year after a visit to the West Indies to study, amongst other questions, the *Madreporæ* of that region. The paper was withdrawn by request of the Society.

I delayed publication in order to reconsider the matter after a few months' interval. A recent letter from Mr. J. E. Duerden, of Jamaica,

by Sloane * in 1707. Sloane used the word in describing the three forms of *Madrepora* which are now generally known as *M. palmata*, *M. cervicornis*, and *M. prolifera*. Linnæus accepted the term as the name of a species which he called *Millepora muricata* in 1754 and *Madrepora muricata* in 1767 †. Linnæus founded the species to include all the *Madreporæ* with an arborescent branching corallum. It was adopted in the sense of either Sloane or Linnæus by subsequent zoologists until 1816, when Lamarck ‡ broke up the *M. muricata*, L. et auct., into five species and abandoned Linnæus's specific name. For the West-Indian *Madreporæ* he founded the species *M. palmata*, *M. cervicornis*, and *M. prolifera*. Lamarck's course of action was adopted by all students of corals until 1890; in that year Prof. Heilprin suggested that the West-Indian branched and palmate forms of *Madrepora* are members of the same species. "I feel doubtful," says Prof. Heilprin §, "if the palmate form of the corallum, as seen in *M. palmata*, *M. flabellum*, and *M. alces* (East Indies), is in itself a character sufficient to distinguish the species from those forms, agreeing with the palmate types in other respects, in which the corallum is strictly digitate. My associate, Mr. J. E. Ives, has called my attention to the tendency in the direction of digitation which many individuals of the palmate species exhibit. This is carried so far in some of the specimens contained in the collections of the Academy of Natural Sciences that it becomes difficult, if not really impossible, to class the individuals." By the digitate types Prof. Heilprin presumably means *M. cervicornis*, for *M. prolifera* he kept quite distinct. The same conclusion was reached and extended in 1893 by Brook ‖,

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who is making a detailed study of the polypes of the West-Indian corals, shows that, like myself, he had been misled by deference to Brook's opinion. It therefore seems to me advisable to publish the paper, and it is issued exactly as written last June. Mr. Duerden says:—"Relying upon Brook's statement that he had met with intermediate specimens of *cervicornis* and *palmata*, I was inclined to regard them all [including *alcicornis*] as one species. I have examined acres of *Madrepora* growth with the object of finding such intermediate forms, but without any success, although such would be expected considering that *prolifera* and *palmata* grow together."]

* Hans Sloane, 'A Voyage to the Islands Madera . . . Jamaica,' vol. i. (1707) pp. 51–53, pl. xviii. figs. 3, 4, pl. xvii. figs. 2, 3.

† Linnæus, Syst. Nat. ed. x. p. 792, ed. xii. p. 1279.

‡ Lamarck, Hist. Nat. Anim. s. Vert. vol. ii. 278, 281.

§ A. Heilprin, "The Corals and Coral-reefs of the Western Waters of the Gulf of Mexico," Proc. Acad. Nat. Sci. Phil. 1890, p. 304.

‖ Geo. Brook, "The Genus *Madrepora*," Cat. Madrep. Brit. Museum, vol. i. 1893, pp. 23–30.

whose opinion was no doubt formed independently, as he does not refer to Prof. Heilprin's paper. In Brook's great monograph of the genus *Madrepora* he not only merged Lamarck's three West-Indian species, but adopted for them Linnæus's name of *muricata*.

During a recent visit to the West Indies I have had the opportunity of studying the three forms of *Madrepora* on the reefs, and have been led to revert to the Lamarckian arrangement. As in 1895 * I accepted Brook's proposals, it may be advisable to state the reasons for my change of opinion.

It will be convenient first to consider whether the West-Indian *Madreporæ* are all to be included in a single species. Brook supported this idea by two lines of evidence:—1st, the distribution of the corals on the reefs; 2nd, the existence of a series of specimens having characters intermediate between those of Lamarck's species.

Habit and Environment.

The first argument was based on statements that Brook attributed to Pourtalès. Thus he says † that Pourtalès has "hinted that the three species of Lamarck may prove to be variations of one species, dependent on environment for their precise habit." But this is not quite a correct account of Pourtalès's opinion. The only reference to Pourtalès which Brook includes in his synonymy is to the memoir on the "Deep-sea Corals." Therein Pourtalès ‡ does hint that possibly *M. cervicornis* and *M. prolifera* may be specifically identical; but he makes no suggestion that *M. palmata* should be united with them. He even comes finally to the conclusion that *M. cervicornis* and *M. prolifera* may be conveniently kept apart. The passage referred to is as follows:—"Some specimens partake so much of the characters of both this [i. e. *M. prolifera*] and the preceding species [*M. cervicornis*] as to shake the belief in their specific difference. Still the greater number of specimens examined are readily distinguished, more perhaps by their habitus than by the more minute characters of the calicles."

Pourtalès's conclusion seems to me sound. Specimens of *M. prolifera* and *M. cervicornis* are distinguishable without

* J. W. Gregory, "Contributions to the Palæontology and Physical Geography of the West Indies," Quart. Journ. Geol. Soc. vol. li. (1895) p. 282.

† Brook, *op. cit.* p. 18.

‡ L. F. de Pourtalès, "Deep-sea Corals," Ill. Cat. Mus. Comp. Zool. no. iv. 1871, p. 84.

difficulty, though fragments may sometimes be indeterminable. But the two forms are sufficiently allied for their separation to be a mere matter of convenience.

The difference between *M. palmata* and *M. cervicornis* is, however, far more definite, and Pourtalès had no hesitation in keeping them distinct. Brook *, however, unites them on the ground that "Pourtalès has pointed out, with regard to the West-Indian specimens of *palmata*, *cervicornis*, and *prolifera*, that the proper habit and robustness of each form is associated with a different position on the reef. *M. palmata* grows in situations exposed to the force of the sea; *M. cervicornis* in less exposed localities; while for its full development *M. prolifera* appears to require sheltered spots on the inner side of the reef." This passage involves another unfortunate misrepresentation of Pourtalès, for, according to that author, the species which "requires a rather sheltered position for its full development" † is *M. cervicornis*, and not *M. prolifera*. In respect to the position of growth of the latter, Pourtalès gives no information; and, so far as my own observations go, *M. prolifera* does not flourish in sheltered spots inside the reef, but in deeper water than *M. cervicornis*, and often outside the main reef. Thus the typical species in the quiet coves of Parham Sound, Antigua, are *M. palmata* and *M. cervicornis*. The best specimens of *M. prolifera* that I obtained from Antigua came from the depth of 3 fathoms from an exposed position on the slopes of Sandy Island.

Pourtalès did say that *M. palmata* is characteristic of the exposed positions on the outside reefs, a statement, however, which is only true with one important limitation. The particular form of *M. palmata* known as "the car of Neptune," which has a massive corallum formed of thick lamellar expansions, is no doubt the typical form of *Madrepora* found in exposed positions in the West-Indian reefs. The fragile branched coralla of *M. cervicornis* and *M. prolifera* would be shattered if struck by the full force of a breaker; they accordingly grow in protected situations or at a depth below the limit of the surf.

It is possible that it was the "Neptune's car" form of *palmata* which Pourtalès had in mind when writing the previously quoted remark. His statement, so far as my observations go, is not correct for *M. palmata* as a whole. The alciform variety of *palmata*, which both Pourtalès and Brook include in that form, grows under identically the same conditions as *M. cervicornis*. For example, I collected specimens of both forms

* Brook, *op. cit.* p. 28.

† Pourtalès, *op. cit.* p. 84.

which were growing side by side, not 18 inches apart, on precisely the same sea-floor, rising to exactly the same level, and equally exposed to wave and current. The position was sheltered in the extreme, for it was on the shore of a small land-locked bay in Parham Sound on the lee side of Bird Island; and the bay was further protected by a shoal across its mouth. In an adjacent patch of reef *M. palmata* and *M. cervicornis* were growing interlocked, but each species was perfectly distinct. In another bay in deeper water there were circular patches of *M. palmata* and *M. cervicornis*, forming flat-topped tabular masses from 10 to 15 feet in diameter. They were growing under identical conditions.

The statements therefore that *M. palmata* and *M. cervicornis* are dimorphic forms of one species and that they have acquired different habits owing to their occurrence at different situations on a reef are not in accordance with their distribution on the coasts of Antigua. Indeed, the fact that where *M. palmata* grows in association with *M. cervicornis* the former is represented by a digitate or branched variety is fatal to the assumption of their specific identity; for the *M. alces* of Dana, and not the *M. cervicornis* of Lamarck, is the branched variety of *M. palmata*.

The Evidence of Intermediate Specimens.

Brook supported his argument by the existence of corals intermediate between *M. palmata* and *M. cervicornis*. I carefully looked out for such in all the reefs I had the chance of examining, but the search was unsuccessful. Brook stated that the "intermediate forms occur chiefly in the collection of the British Museum." He enumerates them on p. 29 of his monograph. The specimens are four in number, and, thanks to the kindness of Prof. Bell, I have had the opportunity of examining them.

The first specimen was collected by the 'Challenger' expedition at St. Thomas. Its registration number is 86. 12. 9. 274. The specimen is 200 millim. long, and consists of a central stem which gives off a series of cylindrical branches. On one side there is, a little above the base, an imperfectly separated branch which subdivides into two and shows the proximal ends of six cylindrical branches. On the other side there are eighteen branches or branchlets. I fail to see any approach to *M. palmata* in this specimen. If the specimen were palmate we should expect it to be so at the base. But at the bottom the central stem measures 30 millim. wide and 20 millim. thick. There is nothing palmate in that. The

specimen appears to me only a *M. cervicornis* in which the branches are numerous and mainly in one plane.

In regard to the three other intermediate forms, my difficulty is to understand why Brook assigned them to the *palmata-cervicornis* group. I had the privilege of examining them in conjunction with Mr. H. M. Bernard, who agreed as to the improbability of their specific identification. There is no evidence that the corals came from the West Indies, and from the characters of the specimens this source seems unlikely.

The second specimen is 93. 4. 7. 22, and its locality is unknown. It is apparently the young basal portion of a corallum, and is, perhaps, too immature for specific identification. It is 120 millim. long by 100 millim. wide, and its surface bears three rows of subconical elevations. On the middle row one process has grown upwards into a branch 30 millim. wide by 25 millim. thick, rising 55 millim. from the bottom of the furrow between the rows and rising 35 millim. above the slit which separates the branch from the adjacent subconical elevation. In one of the outside rows there is a lower branch, 45 millim. long by 30 millim. thick by 32 millim. high. In these characters I fail to see anything to ally the specimen to either *M. palmata* or *M. cervicornis*. The corallum agrees more nearly with Brook's description of that of *M. conigera* *.

The third specimen is no. 93. 4. 7. 23, and its locality is also unknown. It is divided almost to the bottom into branches which if broken into fragments would be indistinguishable from those of *M. cervicornis*, as they would be from several Pacific species. But the corallum is reticular and its general aspect is not that of *cervicornis*, much less of *palmata*. It appears to me to be more like *M. brevicollis* †, though I do not care to venture an attempt at a specific identification of any Indo-Pacific Madrepore.

The fourth specimen (93. 4. 7. 85, locality unknown) is labelled in Mr. Brook's handwriting "*M. muricata?*" The note of interrogation seems amply justified, unless that species be accepted in its original Linnean sense for Indian Ocean muricated *Madreporæ*. The specimen consists of thick, flat, basal lobes, whence arise short thick branches, which divide into a crowded and irregular series of branchlets. If I had to give the specimen a name I should feel tempted to call it a short-branched form of the corals which Brook has identified as *M. Ehrenbergi* ‡.

* Brook, *op. cit.* p. 31.

† Brook, *op. cit.* p. 159, pl. xxvii. figs. A, B.

‡ Edwards & Haime, Hist. nat. Cor. vol. iii. p. 143; Brook, *op. cit.* p. 48.

Hence the specimens which Mr. Brook quoted as linking *M. palmata* and *M. cervicornis* do not seem to me to give any support to the belief in the specific unity of these corals. To dismiss such differences in the form of the corallum as not worthy of specific value appears to me inconsistent with Mr. Brook's practice in later pages of his monograph. Thus he founded a species, *M. attenuata*, for a form which appears to be based on a series of fragments of slender branches of *M. cervicornis*, and he accepted Dana's *M. cyclopea*, which appears to be only an alciform variety of *M. palmata*. In the case of *M. attenuata* it may be objected that the terminal axial corallites are shorter than in *M. cervicornis*; but they are not shorter than in Agassiz's * figures of that species, which show that the character is inconstant. A more serious inconsistency is that Brook divided his subgenus *Conocyathus*, Brk., non d'Orb.†, into four sections, characterized solely by the form of the corallum. The following are his diagnoses of those sections :—

A. Corallum corymbose, with or without confluent branches. If the central branches are long the habit is bushy. (P. 161.)
B. Corallum forming a subcomplanate reticulum, with short twigs on the upper surface. (P. 166.)
C. Corallum cæspitose. (P. 166.)
D. Corallum subarborescent or bushy, usually with numerous short proliferations. (P. 169.)

If the difference between a cæspitose ‡ corallum and a bushy corallum is of more than specific value in "*Conocyathus*," why is the well-marked difference between the palmate and arborescent coralla of less than specific value in *Eumadrepora*?

* L. Agassiz, "Report on the Florida Reefs," Mem. Mus. Comp. Zool. vol. vii. no. 1, 1880, pl. xviii. figs. 1, 4, & 8.

† This name was preoccupied for a genus of corals which has living Australian representatives. Another of Brook's subgeneric names, *Odontocyathus*, is preoccupied for a deep-sea coral dredged by the 'Challenger' and described by Moseley.

‡ The difference that Brook intended to suggest between a cæspitose and a bushy corallum is not very easy to realize. According to Murray's new English Dictionary, cæspitose means "growing in thick tufts or clumps." But Brook places *M. Forskali*, in which he describes the "corallum [as] forming dense and much branched clumps," among the bushy and not among the cæspitose section; and *M. Rousseaui*, in which he describes the corallum as "consisting of tufts," is also excluded from the cæspitose section. Both Ogilvie and Worcester's dictionaries define cæspitose as "growing in tufts."

The Species "*muricata*."

Hence, in the absence of corals intermediate between *M. palmata* and *M. cervicornis*, and in view of the fact that the differences in form between them are not due to growth under different conditions, it appears advisable to return to Lamarck's arrangement of the species. That decision raises the question whether Linnæus's name ought not to be retained. But if we follow Brook, and unite the three species, *M. palmata*, *M. cervicornis*, and *M. prolifera*, and take the first as the typical form—for Brook accepts it as forma A—then the name *muricata* is both inappropriate and inapplicable. It is inappropriate, since the name *muricata* was probably suggested by Linnæus from the resemblance of the branchlets of many species to the varices of *Murex* *. And *M. palmata* is not a muricated species in this sense.

But the name is inapplicable, since, although Linnæus used it to cover all the ramose *Madreporæ* that he knew, he carefully excluded the palmate variety from *M. muricata*. He excluded it in three ways. In the first place, both in his own diagnosis and in his additional remarks, he describes the species as a ramose form—"Madrepora ramosa composita"; "rami albi"; "corallium sæpe format pulcherrime ramis suis corymbum rosaceum." Linnæus makes no reference to palmate or alciform varieties. He also quotes from earlier authors a series of descriptive phrases in which references to the ramose condition continually recur. In the second place, Linnæus carefully excluded the palmate form by omitting reference to the figures of that coral in the list of literature on his *muricata*. Thus Sloane figured an excellent example of the alciform variety †; Linnæus accepts Sloane's figures of the *cervicornis* and *prolifera* types, but not of the *palmata* ‡. Seba § also figured all three forms, the *prolifera* on pl. cviii. fig. 6, the *cervicornis* on pl. cxiv. fig. 1, and a typical *palmata* on pl. cxiii. Linnæus again accepted the two first, but excluded the last. In the third place, the inclusion of *M. palmata* in *M. muricata* is rendered unsatisfactory by the geographical evidence. When Linnæus founded the latter species in 1754 he gave as its habitat "Pelago Asiatico."

* *Muricata*, as Prof. Bell has remarked to me, means spiny, with sharp points.

† Sloane, 'Voyage . . . . Jamaica,' vol. i. pl. xvii. fig. 3.

‡ *I. e.*, he accepts Sloane, *ibid.* vol. i. pl. xviii. fig. 3, pl. xvii. fig. 4; but not pl. xvii. fig. 3.

§ Seba, 'Loc. Rerum Natur. Thesauri,' vol. iii. 1758.

And *M. palmata* is typically, if not exclusively, West Indian, not East Indian.

It is therefore undesirable to take as the type form of Linnæus's species the one *Madrepora* known to Linnæus, which he excluded from it. It seems to me advisable to drop the name *muricata* altogether, on the ground that Linnæus used that name for all the ramose Madrepores he knew, as well as for ramose corals which belong to other families. Thus Linnæus included in *muricata* the coral figured by Seba on his pl. cxvi. fig. 5, which is not a *Madrepora* at all. He included the three corals figured by Morris * as "anomalous submarine plants"; they are equally anomalous as specimens of *Madrepora muricata* as defined by Brook. To take one of the many corals included by Linnæus in *M. muricata* would be an arbitrary proceeding; but if it is to be done the name ought to be applied to an Indo-Pacific species, both since Linnæus assigned it to that area and as the best figures he quotes are those in 'Rumphius Herbarium Amboinense' †. Not one of the three species *M. palmata*, *M. cervicornis*, or *M. prolifera* has been recorded from Amboyna.

The Range of the West-Indian *Madreporæ*.

The argument from the geographical distribution raises the question as to the range of *M. palmata* and *M. cervicornis*. I refer to this question with reluctance, and only at the strong suggestion of Prof. Bell.

According to most authorities the three forms or species of *Madreporæ* found in the West Indies and the western tropical Atlantic are confined to that region. According to Mr. Brook they also occur in the Pacific and Indian Oceans, ranging from Tahiti to the Red Sea. As Prof. Bell pointed out to me, the distribution of these forms as accepted by Brook is very remarkable; for all three forms are very abundant in the West Indies, and they all occur very widely but very sparsely distributed in the Western Pacific and Indian Oceans. The Indo-Pacific specimens referred by Brook to *M. muricata* are eight in number. I examined some of them in 1895, but did not see any one character by which they could all be separated from the West-Indies species, though demurring to the idea that they were all members of one phylogenetic species. After a more careful examination of the specimens, the doubts then expressed are strengthened. The specimens

* Morris, 'Plantarum Hist. Oxon. Univ.' pt. iii. 1699, sect. 15, pl. x. figs. 3, 9, & 10.

† 1750, pl. lxxxvi. figs. 1 & 2.

in the zoological collection of the Museum appear to me insufficient to justify the attribution of an Indo-Pacific range to *M. palmata*, *M. cervicornis*, and *M. prolifera*.

It will be advisable to consider the specimens separately in the order in which Brook catalogued them.

A. palmata.

1. No. 92. 6. 8. 213. Port Darwin. Saville Kent coll. This specimen is a fragment showing no signs of the base. It is a thin flat lamellum, interrupted by lacunæ; it is comparatively level on one face, but has a series of muricate branchlets on the other face.

The specimen differs from typical forms of *palmata* by the presence of the numerous varices, of the small lacunæ, and by the thinness of the lamellum. These differences are perhaps unimportant, but the specimen is such a fragment that its evidence also is unimportant.

2. No. 93. 4. 7. 24. Singapore. This specimen is a fine palmate vasiform corallum; the growth is irregular, and lacunæ pierce the lamellæ. The upper surface is covered with numerous small flat-topped branchlets, at the end of which is a deep pit. The walls are dense.

What specific name should be given to this coral I do not propose to enquire. It is sufficient to point out that it differs from *palmata* by the presence of the numerous branchlets on the upper surface, and that some of its characters necessitate its transference to a different division of *Madrepora* from that to which *M. palmata* belongs.

Brook divided *Madrepora* into four divisions. The first division he characterized as follows:—"*Madreporæ* with cylindrical axial corallites, which project to a greater or less extent at the apex of each division of the corallum; wall usually very porous, margin plane, exterior more or less distinctly striate or rugose." Now in the Singapore specimen each branchlet does not end in a projecting axial corallite; on the contrary, the branchlets are flat-topped and the axial corallites are not exsert. The specimen must therefore be transferred from the division containing *Eumadrepora* to the division comprising the two subgenera *Isopora* and *Tylopora*. It cannot, however, rest in either of those genera as they were defined by Brook; for according to the characters of the corallum it would be an *Isopora*, and according to those of the branchlets it would be a *Tylopora*.

B. *prolifera.*

3. No. 46. 7. 30. 8. Wreck Bay, Great Barrier Reef, N.E. Australia.

This specimen is the only one in the collection which is catalogued as a Pacific form of *prolifera*. It is a small fragment, 2 inches long, and its evidence is insufficient.

Form intermediate between prolifera *and* cervicornis.

4. No. 93. 4. 7. 43. Tahiti. (*M. regalis*, Ehr.)

Milne-Edwards & Haime * described *M. regalis* as "très-voisine du *M. prolifera*, mais ayant les branches plus grosses." That definition accurately describes the habit of this specimen. The thickness of the branches agrees with that of *M. cervicornis*. The specimen differs from *M. cervicornis* by having very short (1–2 millim. exsert) terminal corallites, in which the primary septa are very unequal. According to Brook the axial corallites of *cervicornis* have the terminal corallite 6–8 millim. exsert and the primary septa subequal.

The corallites differ from those of *M. prolifera* by having well-developed septa, whereas, according to Brook, in that form "the directive septa are moderately developed, but the remaining members of the primary cycle are more or less rudimentary."

C. *cervicornis.*

5–7. Nos. 92. 6. 8. 210–212. Port Darwin. Saville Kent coll.

These three specimens, though differing somewhat in the relative closeness of the branches probably belong to the same species. The habit is cervicorn; but the most striking feature of the coral is that the terminal axial corallites are broad, short, and thick-walled; the wall, in fact, is equal in thickness to the transverse diameter of the calice. In the youngest corallites there are 6 septa; in older corallites the septa number from 12–16; in the largest and best-preserved corallites (*e. g.* in one marked with an ink-dot on specimen 92. 6. 8. 210) there are 3 complete cycles of septa.

Now, according to Brook, in the subgenus *Eumadrepora* the axial corallites have a "relatively thin wall and 12 septa." Hence the Port Darwin corals are not typical members of the same subgenus as *M. cervicornis*.

* Hist. nat. Cor. vol. iii. p. 139.

S. No. 92. 6. 8. 214. Thursday Island. Saville Kent collection.

This is the last specimen in Brook's list, and it is that which most closely resembles *M. cervicornis*. It agrees with that form in (1) the radial corallites being nariform below and tubo-nariform in the distal parts, (2) in the thin walls of the terminal radial corallite, and (3) in the striate or echinulate ornamentation of the walls of the corallites.

These three characters are common to most of the arborescent Madrepores; the first and third characters occur in nearly all, as, *e. g.*, in *M. intermedia*. The most important point of resemblance between this specimen and *M. cervicornis* is the length of the terminal corallite. This structure is shown, however, only on one branch of the Thursday Island specimen.

There are not wanting differences between this coral and Brook's description of *M. cervicornis*. Thus he states that the primary septa are subequal, whereas in this specimen they are very unequal, while the one terminal corallite, though of the same length as in *M. cervicornis*, is narrower, being 3 millim. instead of 4–5 millim. in diameter.

Why this specimen, with its long narrow terminal corallite, was regarded as the same species and variety as the Port Darwin specimens, with their short, broad, thick-walled, terminal corallites, is not obvious.

Hence I am driven to the conclusion that the evidence of the eight Madrepores which Brook catalogued as Indo-Pacific representatives of *M. palmata*, *cervicornis*, and *prolifera* is insufficient to prove the occurrence of those species in the Indo-Pacific Ocean.

Summary of Conclusions.

1. *M. palmata*, Lam., may be conveniently kept distinct from *M. cervicornis*, since (*a*) the two forms live under identical conditions, their differences are not due to environment, and (*b*) the evidence of the intermediate forms is inconclusive.
2. *M. palmata*, Lam., should not be treated as the typical form of *M. muricata*, L., from which Linnæus excluded it.
3. If the name *M. muricata* be retained, which seems undesirable, it should be used for an Indo-Pacific species.
4. The evidence of the range of *M. palmata*, *M. cervicornis*, and *M. prolifera* into the Indo-Pacific is inadequate.